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| NEWS         | 15 | OCT 23 | CAS Registry Number crossover limit increased to 300,000 in multiple databases   |
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| NEWS         | 17 | OCT 30 | CHEMLIST enhanced with new search and display field  |
| NEWS         | 18 | NOV 03 | JAPIO enhanced with IPC 8 features and functionality   |
| NEWS         | 19 | NOV 10 | CA/CAPLUS F-Term thesaurus enhanced  |
| NEWS         | 20 | NOV 10 | STN Express with Discover! free maintenance release Version 8.01c now available  |
| NEWS         | 21 | NOV 13 | CA/CAPLUS pre-1967 chemical substance index entries enhanced with preparation role   |
| NEWS         | 22 | NOV 20 | CAS Registry Number crossover limit increased to 300,000 in additional databases   |
| NEWS         | 23 | NOV 20 | CA/CAPLUS to MARPAT accession number crossover limit increased to 50,000   |
| NEWS         | 24 | NOV 20 | CA/CAPLUS patent kind codes will be updated  |
| NEWS         | 25 | DEC 01 | CAS REGISTRY updated with new ambiguity codes  |
| NEWS EXPRESS |    |        | NOVEMBER 10 CURRENT WINDOWS VERSION IS V8.01c, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 25 SEPTEMBER 2006. |
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| NEWS LOGIN   |    |        | Welcome Banner and News Items  |
| NEWS IPC8    |    |        | For general information regarding STN implementation of IPC 8  |
| NEWS X25     |    |        | X.25 communication option no longer available  |

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=> s (hologram or holographic)

L1 77255 (HOLOGRAM OR HOLOGRAPHIC)

=> s l1 and hydroxyethyl (8w) methacrylate

L2 80 L1 AND HYDROXYETHYL (8W) METHACRYLATE

=> s (hologram or holographic) (s) (sens? or detect? or monitor?)

L3 11086 (HOLOGRAM OR HOLOGRAPHIC) (S) (SENS? OR DETECT? OR MONITOR?)

=> s l3 and hydroxyethyl (8w) methacrylate

L4 21 L3 AND HYDROXYETHYL (8W) METHACRYLATE

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=> display l4 1-21 ibib abs

L4 ANSWER 1 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:47821 CAPLUS

DOCUMENT NUMBER: 142:312596

TITLE: Divalent metal ion-sensitive  
holographic sensors

AUTHOR(S): Madrigal Gonzalez, Blanca; Christie, Graham; Davidson,  
Colin A. B.; Blyth, Jeff; Lowe, Christopher R.

CORPORATE SOURCE: Institute of Biotechnology, University of Cambridge,  
Cambridge, CB2 1QT, UK  
SOURCE: Analytica Chimica Acta (2005), 528(2), 219-228  
CODEN: ACACAM; ISSN: 0003-2670  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 142:312596

AB A holog. sensor for real-time detection of  
divalent metal ions (Ca<sup>2+</sup>, Mg<sup>2+</sup>, Ni<sup>2+</sup>, Co<sup>2+</sup> and Zn<sup>2+</sup>) has been fabricated  
by incorporating a chelating monomer into a hydrogel matrix. A  
methacrylated analog of iminodiacetic acid (IDA) was prepared and  
co-polymerized  
with hydroxyethyl methacrylate (HEMA) and ethylene  
glycol dimethacrylate (EDMA) as a cross-linker to form polymer films. A  
silver-based reflection hologram was incorporated into the hydrogel by  
diffusion followed by holog. recording using a frequency-doubled Nd/YAG  
laser. Changes in the replay wavelength of the hologram were used to  
characterize the swelling behavior of the matrix as a function of its  
chemical composition and concentration of analyte in the media. The effects  
of active  
monomer, cross-linker, pH and ionic strength on the swelling of the matrix  
and on metal detection sensitivity have been studied. Polymers containing >10  
mol% of chelating monomer and 6 mol% of cross-linker showed significant  
responses (46.3 nm) within 30 s at an ion concentration of 0-40 mM. The  
selectivity of the holograms towards the different ions tested was  
Ni<sup>2+</sup>>Zn<sup>2+</sup>>Co<sup>2+</sup>>Ca<sup>2+</sup>>Mg<sup>2+</sup>. The sensor showed fully reversible responses,  
permitting real-time monitoring of calcium ion efflux during the  
germination of *Bacillus megaterium* spores.

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:780912 CAPLUS  
DOCUMENT NUMBER: 141:251245  
TITLE: Holographic sensors and their  
production  
INVENTOR(S): Lowe, Christopher Robin; Davidson, Colin Alexander  
Bennett; Blyth, Jeffrey; Marshall, Alexander James;  
James, Anthony Peter  
PATENT ASSIGNEE(S): Smart Holograms Limited, UK  
SOURCE: PCT Int. Appl., 15 pp..  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| WO 2004081546  | A1   | 20040923 | WO 2004-GB979   | 20040311 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,<br>CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,<br>GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,<br>LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,<br>NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,<br>TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |      |          |                 |          |
| RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,<br>BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,<br>ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,<br>SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,<br>TD, TG   |      |          |                 |          |
| AU 2004219875  | A1   | 20040923 | AU 2004-219875  | 20040311 |
| CA 2516169   | AA   | 20040923 | CA 2004-2516169 | 20040311 |

EP 1601953 A1 20051207 EP 2004-719506 20040311  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK  
 PRIORITY APPLN. INFO.: GB 2003-5591 A 20030311  
 WO 2004-GB979 A 20040311

AB An array of discrete sensors disposed on a substrate, each  
 sensor comprising a holog. support medium and a  
 hologram disposed throughout the volume of the medium, whereby  
 interaction with an analyte results in a variation of a property of the  
 medium.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:41665 CAPLUS  
 DOCUMENT NUMBER: 140:90268  
 TITLE: Detection of microorganisms with  
 holographic sensor  
 INVENTOR(S): Lowe, Christopher Robin; Davidson, Colin Alexander  
 Bennett  
 PATENT ASSIGNEE(S): Smart Holograms Limited, UK  
 SOURCE: PCT Int. Appl., 19 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| WO 2004005537   | A1   | 20040115 | WO 2003-GB2958  | 20030709   |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,<br>GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,<br>LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,<br>PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,<br>TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,<br>KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,<br>FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,<br>BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG |      |          |                 |            |
| CA 2491889  | AA   | 20040115 | CA 2003-2491889 | 20030709   |
| AU 2003260676   | A1   | 20040123 | AU 2003-260676  | 20030709   |
| EP 1520033  | A1   | 20050406 | EP 2003-762814  | 20030709   |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  |      |          |                 |            |
| JP 2005532059   | T2   | 20051027 | JP 2004-519006  | 20030709   |
| US 2006057653   | A1   | 20060316 | US 2005-520221  | 20050727   |
| PRIORITY APPLN. INFO.:  |      |          |                 |            |
|   |      |          | GB 2002-15878   | A 20020709 |
|   |      |          | WO 2003-GB2958  | W 20030709 |

L4 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2003:588706 CAPLUS  
 DOCUMENT NUMBER: 139:257646

TITLE: pH-sensitive holographic sensors  
 AUTHOR(S): Marshall, Alexander J.; Blyth, Jeff; Davidson, Colin A. B.; Lowe, Christopher R.  
 CORPORATE SOURCE: Institute of Biotechnology, University of Cambridge, Cambridge, CB2 1QT, UK  
 SOURCE: Analytical Chemistry (2003), 75(17), 4423-4431  
 CODEN: ANCHAM; ISSN: 0003-2700  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Holog. sensors for monitoring H<sup>+</sup> (pH) have been fabricated from ionizable monomers incorporated into thin, polymeric, hydrogel films which were transformed into volume holograms using a diffusion method coupled with holog. recording, using a frequency doubled Nd:YAG laser (532 nm). Unlike other optical pH sensors, it is possible to tailor the operational replay wavelength of the holog. sensor by careful control of the exposure conditions. The holog. diffraction wavelength (color) of the holograms was used to characterize their shrinkage and swelling behavior as a function of pH in various media. The effects of hydrogel composition, ionic strength, temperature, and factors influencing reversibility and response time are evaluated. Optimized holog. pH sensors show milli-pH resolution. The pH-sensing range of the holograms can be controlled through variation of the nature of the ionizable co-monomer used in polymer film construction; a series of holog. sensors displaying visually perceptible, fully reversible color changes over different pH ranges are demonstrated. A poly(hydroxyethyl methacrylate-co-methacrylic acid) holog. sensor was shown to be able to quantify the change in H<sup>+</sup> concns. in real time in a sample of milk undergoing homolactic fermentation in the presence of Lactobacillus casei.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:714288 CAPLUS  
 DOCUMENT NUMBER: 137:249230  
 TITLE: Hologram-type transfer sheets with relief patterns resistance to marring and scratch  
 INVENTOR(S): Hojo, Mikiko; Shiota, Satoshi  
 PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 2002268523          | A2   | 20020920 | JP 2001-65720   | 20010308 |
| PRIORITY APPLN. INFO.: |      |          | JP 2001-65720   | 20010308 |

AB The transfer sheets comprise a substrate film and a transfer member comprising a hologram-forming layer and a heat-sensitive adhesive layer which is distant from the substrate where the hologram-forming layer is obtained from resins having the dynamic storage modulus (E') from a dynamic viscoelastic measurement over a temperature range of 120-180° of >5.0x10<sup>7</sup> Pa and maximum value for tanδ at a temperature of >100°. Thus, adding a mixture of hydroxyethyl methacrylate 24.6, Me methacrylate 73.7, dicyclopentenylxyethyl methacrylate 24.6, PhMe 20 and MEK 20 to a reactor containing PhMe 40, MEK 40 parts and an azo initiator over 2 h while heating at 100-110° for 8 h, cooling the reaction mixture to room

temperature, adding 2-isocyanatoethyl methacrylate 27.8, PhMe 20 and MEK 20 g and Bu<sub>2</sub>Sn dilaurate and reacting gave a resin in solution with solids content 41.0%, E' 1.03x10<sup>9</sup> Pa for the min. value in a temperature range of 120-180° and maximum value for tanδ found at 124.3°. Mixing the resin 100 (as solids) with KF 7312 1, SR 399 (polyacrylate crosslinker) 70 and Irgacure 907 (photoinitiator) 5 parts, coating the resulting mixture to the release surface of a release-coated Lumirror T 60 (PET) film, and drying gave a copying film which was then press stamped with raised micro-patterns at 150° using a hologram master, irradiated with UV light, vapor deposited with an Al thin layer and coated (on the resulting relief patterns) with a HS 32 Mat (heat-sensitive adhesive) layer and heated to give a transfer readily for transfer onto a card surface.

L4 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:492938 CAPLUS  
DOCUMENT NUMBER: 137:197658  
TITLE: Metal ion-sensitive holographic sensors  
AUTHOR(S): Mayes, Andrew G.; Blyth, Jeff; Millington, Roger B.; Lowe, Christopher R.  
CORPORATE SOURCE: Institute of Biotechnology, University of Cambridge, Cambridge, CB2 1QT, UK  
SOURCE: Analytical Chemistry (2002), 74(15), 3649-3657  
CODEN: ANCHAM; ISSN: 0003-2700  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Holog. sensors for Na<sup>+</sup> and K<sup>+</sup> have been fabricated from crown ethers incorporated into polymeric hydrogels. The methacrylate esters of a homologous series of hydroxyether crown ethers were synthesized and copolymd. with hydroxyethyl methacrylate and the cross-linker ethylene dimethacrylate (3 mol %) to form stable hydrogel films (.apprx.10 μm thick) containing covalently bound (0-97 mol %) 12-crown-4, 15-crown-5, and 18-crown-6 pendant functionalities. The films were transformed into silver-based volume holograms using a diffusion method coupled with a holog. recording using a frequency-doubled Nd:YAG laser. The resulting holog. reflection spectrum was used to characterize the shrinkage and swelling behavior of the holograms as a function of polymer composition and the nature and concentration of alkali, alkaline earth, and NH<sub>4</sub><sup>+</sup> ions in the test media. Optimized film compns. containing 50 mol % crown ether showed substantial responses (≤200 nm) within 30 s at ion concns. of ≤30 mM, which could be rationalized on the basis of the known complexation behavior of the crown ethers. An 18-crown-6 holog. film was shown to be able to quantitate K<sup>+</sup> concns. over the physiol. relevant range. It was virtually unaffected by variations in the Na<sup>+</sup> background concentration within the normal physiol. variation (.apprx.0.13-0.15 M) and shows promise for developing simple, low-cost K<sup>+</sup> sensors for medical applications.

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:137440 CAPLUS  
DOCUMENT NUMBER: 132:182082  
TITLE: Brilliant or pearlescent pigments and their manufacture  
INVENTOR(S): Fujita, Manabu; Teranishi, Takashi; Sato, Akihiko; Kawahata, Masami  
PATENT ASSIGNEE(S): Nippon Paint Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| JP 2000063711   | A2   | 20000229 | JP 1998-234046  | 19980820 |
| PRIORITY APPLN. INFO.:  |      |          | JP 1998-234046  | 19980820 |
| AB The pigments are manufactured by grinding a hologram-printed precursor to particle size of 1-100 $\mu$ m, where the precursor is obtained by printing a hologram on a volumetric hologram-recording layer obtained from curable resin binders, unsatd. monomers and photoinitiators, then curing. Thus, coating a filtered mixture of Et acrylate-glycidyl methacrylate-Me methacrylate copolymer 40, bis(4-acryloxydiethoxyphenyl)methane 55, 3,9-diethyl-3'-carboxymethyl-2,2'-thiacarbocyanine iodide 0.1 and diphenyliodonium trifluoromethanesulfonic acid salt 3 parts on a glass surface, and drying at 100° for 5 min gave a 25- $\mu$ m photo-sensitive layer which was laminated with a Lumirror T film (PET) to give a hologram-recording dry plate. Affixing the dry plate on a flat mirror via an index matching liquid, irradiating with collimated Ar laser at an incident angle of 25°, drying at 80° for 30 min, irradiating with UV light, detaching the hologram-containing plate from the PET film and the mirror, and freeze-milling gave pearlescent pigments with diameter 10-30 $\mu$ m. |      |          |                 |          |

L4 ANSWER 8 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:784356 CAPLUS  
DOCUMENT NUMBER: 132:28750  
TITLE: Holographic sensor production  
INVENTOR(S): Blyth, Jeffrey; Lowe, Christopher Robin; Mayes, Andrew  
Geoffrey; Millington, Roger Bradley  
PATENT ASSIGNEE(S): Cambridge University Technical Services Ltd., UK  
SOURCE: PCT Int. Appl., 29 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| WO 9963408  | A1   | 19991209 | WO 1999-GB1612  | 19990521   |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          |                 |            |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  |      |          |                 |            |
| CA 2333670  | AA   | 19991209 | CA 1999-2333670 | 19990521   |
| AU 9940510  | A1   | 19991220 | AU 1999-40510   | 19990521   |
| EP 1082643  | A1   | 20010314 | EP 1999-923748  | 19990521   |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI   |      |          |                 |            |
| US 6689316  | B1   | 20040210 | US 2001-701476  | 20010209   |
| PRIORITY APPLN. INFO.:  |      |          | GB 1998-11655   | A 19980529 |
|   |      |          | WO 1999-GB1612  | W 19990521 |
| AB A method for the production of a holog. sensor wherein the holog. recording material forming the sensitive element is a polymer matrix, which comprises diffusing into the matrix one or more soluble salts that undergo reaction in situ to form an insol. sensitive precipitate and recording a holog. image. This                           |      |          |                 |            |

method allows the production of a holog. sensor wherein the holog. recording material forming the sensitive element is an insol. polymer film.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:472131 CAPLUS

DOCUMENT NUMBER: 131:151786

TITLE: Gradient index-forming material, holographic dry plate using it, and manufacture of hologram using the plate

INVENTOR(S): Ishizuka, Takeshi; Miyashita, Tomoko

PATENT ASSIGNEE(S): Fujitsu Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 11202740            | A2   | 19990730 | JP 1998-8771    | 19980120 |
| PRIORITY APPLN. INFO.: |      |          | JP 1998-8771    | 19980120 |

AB The material contains (A) binder polymers composed of a vinyl/acrylic copolymer with the maximum of polystyrene-conversion average mol. weight (M) 1 + 105-1 + 106 and a vinyl/acrylic copolymer with M 8 + 103-4 + 104, (B) photopolymerizable monomers containing aromatic or halo-containing vinyl/acrylic monomer and/or polyfunctional vinyl/acrylic monomer, and (C) a photopolymer. initiator. The holog. dry plate comprises a substrate coated with a photosensitive film from the above material. The hologram is manufactured by (1) applying a photosensitive film on a substrate from the above material to form a holog. dry plate, (2) exposing the photosensitive film with a light, and (3) curing the photosensitive film. The material shows high diffraction efficiency, transparency, and good heat resistance.

L4 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:441704 CAPLUS

DOCUMENT NUMBER: 131:213278

TITLE: A Holographic Alcohol Sensor

AUTHOR(S): Mayes, Andrew G.; Blyth, Jeff; Kyyroelaeinen-Reay, Marika; Millington, Roger B.; Lowe, Christopher R.

CORPORATE SOURCE: Institute of Biotechnology, University of Cambridge, Cambridge, CB2 1QT, UK

SOURCE: Analytical Chemistry (1999), 71(16), 3390-3396

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A simple liquid-phase alc. sensor based on a reflection hologram distributed throughout the volume of a cross-linked poly(hydroxyethyl methacrylate) film is described. The sensor is interrogated optically through the back of the film, by measuring the peak wavelength of the narrow-band reflection spectrum when the hologram is illuminated with white light. This procedure makes it possible to measure thickness changes in the film with great precision. The presence of alc. in the sample medium causes the polymer film to swell in a concentration-dependent manner, whence the alc. content can be

determined by measurement of the wavelength of the reflected spectral peak. The sensor exhibits a wide dynamic range, which can easily be tuned for specific applications, and is unaffected by highly colored and turbid samples, since the light path does not pass through the sample. The



sensor is relatively insensitive to pH in the range 3-6.5 and is highly stable, both in use and in storage. The performance of the sensor was demonstrated by measuring the alc. contents of a wide range of alc. beverages such as wines and beers, with no sample pretreatment. Most alc. concns. were determined to be within approx.  $\pm 0.3$  vol % of their stated values.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 11 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1997:433327 CAPLUS  
 DOCUMENT NUMBER: 127:58136  
 TITLE: Light-sensitive composition for holographic recording  
 INVENTOR(S): Kano, Yoshinori; Yasuike, Madoka  
 PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 09106241            | A2   | 19970422 | JP 1995-261083  | 19951009 |
| PRIORITY APPLN. INFO.: |      |          | JP 1995-261083  | 19951009 |

AB A light-sensitive composition suited for use in volume phase holog. recording, comprises (A) a polymer compound containing a polysiloxane compound in the side chain, (2) a compound having polymerizable ethylenic unsatd. bonds, and (C) a photo-initiator. The composition is characterized in that the laser-induced reflective index variation is  $\geq 0.005$ .

L4 ANSWER 12 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1997:314002 CAPLUS  
 DOCUMENT NUMBER: 127:25749  
 TITLE: Wavelength multiplexed holograms by persistent spectral hole burning  
 AUTHOR(S): Yagyu, Eiji; Yoshimura, Motomu  
 CORPORATE SOURCE: Advanced Technology RandD Center, Mitsubishi Electric Corporation, Amagasaki, 661, Japan  
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1997), 3011(Practical Holography XI and Holographic Materials III), 333-342  
 CODEN: PSISDG; ISSN: 0277-786X  
 PUBLISHER: SPIE-The International Society for Optical Engineering  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB We have been investigating wavelength multiplexed holograms in persistent spectral hole burning (PHB) materials. We have examined PHB hologram characteristics in some organic PHB materials to show guides to produce more suitable PHB materials for wavelength multiplexed holograms. The examined characteristics were diffraction efficiency, sensitivity and the capability of wavelength-multiplexing and the distribution of diffraction efficiency at the temperature of 4.2 K. Typical characteristics in the examined materials at 4.2 K were as follows; (1) sensitivity of  $> 0.1$  mJ/cm<sup>2</sup>, (2) diffraction efficiency of  $< 0.3$  %, and (3) the holograms' intervals of  $> 15$  GHz where adjacent holograms could be formed most closely without cross talk. Hundreds of holograms can be stored without cross talk with each other in calcn. Furthermore, we showed that wavelength multiplexed holog. storage of tens of 2- and 3-D images could be performed at the different laser frequencies at the temperature

of 4.2 K. The continuous 3-D retrieval of the images of a moving object could be performed by scanning laser frequency continuously.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:41689 CAPLUS

DOCUMENT NUMBER: 126:67592

TITLE: Photosensitive composition and recording medium for hologram and hologram formation

INVENTOR(S): Yasuike, Madoka; Kano, Yoshinori

PATENT ASSIGNEE(S): Toyo Ink Mfg Co, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 08272284            | A2   | 19961018 | JP 1995-75283   | 19950331 |
| PRIORITY APPLN. INFO.: |      |          | JP 1995-75283   | 19950331 |

AB The title photosensitive composition comprises a F-containing polymer A, a polymerizable group-bearing compound B, a polymerization initiating system C activated by exposing to a chemical radiation ray, and a solvent D capable of dissolving B but not A which is dispersed in the solvent D. 8  
Modifications of the photosensitive composition and recording medium using the photosensitive composition and hologram formation are also claimed.

L4 ANSWER 14 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:81497 CAPLUS

DOCUMENT NUMBER: 124:131617

TITLE: Hologram recording material with superior sensitivity, refractivity, transparency and resolution

INVENTOR(S): Yamaguchi, Takeo; Toba, Yasumasa; Kano, Yoshinori; Yasuike, Madoka

PATENT ASSIGNEE(S): Toyo Ink Mfg Co, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 07261644            | A2   | 19951013 | JP 1994-55450   | 19940325 |
| PRIORITY APPLN. INFO.: |      |          | JP 1994-55450   | 19940325 |

AB The title recording material comprises (A) a polyester resin containing  $\geq 1$  of a fraction bearing a (meth)acryl group and having weight average mol. weight 1,000-30,000, (B) a polymerizable ethylenic monomer of mol. weight  $\leq 1,000$ , (C) a photo-sensitizing dye, (D) a photopolymn. initiator, and (E) a multi-functional crosslinker capable of reacting with polyester A.

L4 ANSWER 15 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:81496 CAPLUS

DOCUMENT NUMBER: 124:131616

TITLE: Hologram recording material with superior sensitivity, refractivity, transparency and resolution

INVENTOR(S): Yamaguchi, Takeo; Kano, Yoshinori; Toba, Yasumasa;

Yasuike, Madoka  
PATENT ASSIGNEE(S): Toyo Ink Mfg Co, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| JP 07261643  | A2   | 19951013 | JP 1994-55449   | 19940325 |
| PRIORITY APPLN. INFO.:   |      |          | JP 1994-55449   | 19940325 |
| AB The title recording material comprises (A) a polyester resin containing $\geq 1$ of a fraction bearing a (meth)acryl group and having weight average mol. weight 1,000-30,000, (B) a polymerizable ethylenic monomer of mol. weight $\leq 1,000$ , (C) a photo-sensitizing dye, and (D) a photopolymn. initiator. |      |          |                 |          |

L4 ANSWER 16 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1995:487935 CAPLUS  
DOCUMENT NUMBER: 122:226933  
TITLE: Holographic recording composition and medium and hologram formation  
INVENTOR(S): Yamaguchi, Takeo; Toba, Yasumasa; Yasuike, Madoka  
PATENT ASSIGNEE(S): Toyo Ink Mfg Co, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE       |
|--|------|----------|-----------------|------------|
| JP 06295149  | A2   | 19941021 | JP 1993-52334   | 19930312   |
| PRIORITY APPLN. INFO.:   |      |          | JP 1993-21522   | A 19930209 |
| AB The title holog. recording composition comprises (A) an active H-containing polymer, (B) a compound containing $\geq 1$ polymerizable ethylenic unsatd. bond, (C) a photo-sensitizing dye, (D) a polymerization initiator, and (E) a crosslinker containing a functional group capable of reacting with the polymer (A). Holog. recording medium and manufacture of hologram using the above composition are also claimed. The holog. medium can easily give hologram with high-sensitivity, chemical stability, high-resolution, high-diffraction efficiency high-transparency and superior strength of the photosensitive film. |      |          |                 |            |

L4 ANSWER 17 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1992:116941 CAPLUS  
DOCUMENT NUMBER: 116:116941  
TITLE: Holographic recordings on 2-hydroxyethyl methacrylate (HEMA) and applications of water immersed holograms  
AUTHOR(S): Yacoubian, Araz; Savant, Gajendra; Aye, Tin M.  
CORPORATE SOURCE: Appl. Technol. Div., Phys. Opt. Corp., Torrance, CA, 90505, USA  
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1991), 1559(Photopolym. Device Phys., Chem., Appl. 2), 403-9  
CODEN: PSISDG; ISSN: 0277-786X  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A new holog. recording medium based on poly(2-hydroxyethyl methacrylate) (HEMA) and visible light

sensitizer is investigated. The holog. recordings are based on photoinduced polymerization of HEMA, using camphorquinone as a visible light sensitizer. The medium does not require extensive processing and survives high humidity conditions, including water immersion. Several expts. are conducted to analyze the behavior of this medium, including anal. of recording parameters using a real-time holog. recording/playback setup, pre-curing, swelling, and water survivability tests.. Water-immersion survivability is a unique characteristic that can be incorporated in novel holog. and optical systems, such as water immersed holog. optical elements.

L4 ANSWER 18 OF 21 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(4):7979 COMPENDEX

TITLE: Divalent metal ion-sensitive holographic sensors.

AUTHOR: Madrigal Gonzalez, Blanca (Institute of Biotechnology University of Cambridge Tennis Court Road, CB2 1QT, Cambridge, United Kingdom); Christie, Graham; Davidson, Colin A.B.; Blyth, Jeff; Lowe, Christopher R.

SOURCE: Analytica Chimica Acta v 528 n 2 Jan 10 2005 2005.p 219-228

CODEN: ACACAM ISSN: 0003-2670

PUBLICATION YEAR: 2005

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2005(4):7979 COMPENDEX

AB A holographic sensor for real-time detection of divalent metal ions ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Co}^{2+}$  and  $\text{Zn}^{2+}$ ) has been fabricated by incorporating a chelating monomer into a hydrogel matrix. A methacrylated analogue of iminodiacetic acid (IDA) was prepared and co-polymerised with hydroxyethyl methacrylate (HEMA) and ethylene glycol dimethacrylate (EDMA) as a cross-linker to form polymer films. A silver-based reflection hologram was incorporated into the hydrogel by diffusion followed by holographic recording using a frequency-doubled Nd/YAG laser. Changes in the replay wavelength of the hologram were used to characterise the swelling behaviour of the matrix as a function of its chemical composition and concentration of analyte in the media. The effects of active monomer, cross-linker, pH and ionic strength on the swelling of the matrix and on metal detection sensitivity have been studied. Polymers containing >10 mol% of chelating monomer and 6 mol% of cross-linker showed significant responses (46.3 nm) within 30 s at an ion concentration of 0-40 mM. The selectivity of the holograms towards the different ions tested was  $\text{Ni}^{2+} > \text{Zn}^{2+} > \text{Co}^{2+} > \text{Ca}^{2+} > \text{Mg}^{2+}$ . The sensor showed fully reversible responses, permitting real-time monitoring of calcium ion efflux during the germination of *Bacillus megaterium* spores. \$CPY 2004 Elsevier B.V. All rights reserved. 54 Refs.

L4 ANSWER 19 OF 21 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(38):7088 COMPENDEX

TITLE: pH-sensitive holographic sensors.

AUTHOR: Marshall, Alexander J. (Institute of Biotechnology University of Cambridge, Cambridge, CB2 1QT, United Kingdom); Blyth, Jeff; Davidson, Colin A. B.; Lowe, Christopher R.

SOURCE: Analytical Chemistry v 75 n 17 Sep 1 2003 2003.p 4423-4431

CODEN: ANCHAM ISSN: 0003-2700

PUBLICATION YEAR: 2003

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2003(38):7088 COMPENDEX

AB Holographic sensors for monitoring H<sup>+</sup> (pH) have been fabricated from ionizable monomers incorporated into thin, polymeric, hydrogel films which were transformed into volume holograms using a diffusion method coupled with holographic recording, using a frequency doubled Nd:YAG laser (532 nm). Unlike other optical pH sensors, it is possible to tailor the operational replay wavelength of the holographic sensor by careful control of the exposure conditions. The holographic diffraction wavelength (color) of the holograms was used to characterize their shrinkage and swelling behavior as a function of pH in various media. The effects of hydrogel composition, ionic strength, temperature, and factors influencing reversibility and response time are evaluated. Optimized holographic pH sensors show milli-ph resolution. The pH-sensing range of the holograms can be controlled through variation of the nature of the ionizable co-monomer used in polymer film construction; a series of holographic sensors displaying visually perceptible, fully reversible color changes over different pH ranges are demonstrated. A poly(hydroxyethyl methacrylate-co-methacrylic acid) holographic sensor was shown to be able to quantify the change in H<sup>+</sup> concentrations in real time in a sample of milk undergoing homolactic fermentation in the presence of Lactobacillus casei. 37 Refs.

L4 ANSWER 20 OF 21 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1992(3):3217 COMPENDEX

DOCUMENT NUMBER: 920333986

TITLE: Holographic recordings on 2-hydroxyethyl methacrylate and applications of water-immersed holograms.

AUTHOR: Yacoubian, Araz (Physical Optics Corp., Pasadena, CA, USA); Savant, Gajendra D.; Aye, Tin M.

MEETING TITLE: Photopolymer Device Physics, Chemistry, and Applications II.

MEETING ORGANIZER: SPIE - Int Soc for Opt Engineering, Bellingham, WA, USA

MEETING LOCATION: San Diego, CA, USA

MEETING DATE: 24 Jul 1991-26 Jul 1991

SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 1559. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA. p 403-409  
CODEN: PSISDG ISSN: 0277-786X  
ISBN: 0-8194-0687-2

PUBLICATION YEAR: 1991

MEETING NUMBER: 15900

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Experimental; Application

LANGUAGE: English

AN 1992(3):3217 COMPENDEX DN 920333986

AB A new holographic recording medium based on poly-2-Hydroxyethyl Methacrylate (HEMA) and visible light sensitizer is investigated. The holographic recordings are based on photo- induced polymerization of HEMA, using Camphorquinone as a visible light sensitizer. The medium has several advantages. Namely, it does not require extensive processing and survives high humidity conditions, including water immersion. Several experiments have been conducted to analyze the behavior of this medium, including analysis of recording parameters using a real-time holographic recording/playback setup, precuring, swelling, and water survivability tests. Water-immersion survivability of our material is a unique characteristic that can be incorporated in novel holographic and

optical systems, such as water immersed holographic optical elements. New possibilities and applications are discussed. 13 Refs.

L4 ANSWER 21 OF 21 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1992:4189847 INSPEC

DOCUMENT NUMBER: A1992-16-4240-017; B1992-08-4350-049

TITLE: Holographic recordings on 2-hydroxymethyl methacrylate (HEMA) and applications of water immersed holograms

AUTHOR: Yacoubian, A.; Savant, G.; Aye, T.M. (Appl. Technol. Div., Phys. Opt. Corp., Torrance, CA, USA)

SOURCE: Proceedings of the SPIE - The International Society for Optical Engineering (1991), vol.1559, p. 403-9, 13 refs.

CODEN: PSISDG, ISSN: 0277-786X

Price: 0 8194 0687 2/91/\$4.00

Conference: Photopolymer Device Physics, Chemistry and Applications II, San Diego, CA, USA, 24-26 July 1991

Sponsor(s): SPIE

DOCUMENT TYPE: Conference; Conference Article; Journal

TREATMENT CODE: Experimental

COUNTRY: United States

LANGUAGE: English

AN 1992:4189847 INSPEC DN A1992-16-4240-017; B1992-08-4350-049

AB A new holographic recording medium based on poly-2-hydroxyethyl methacrylate (HEMA) and visible light sensitiser is investigated. The holographic recordings are based on photo-induced polymerisation of HEMA, using camphorquinone as a visible light sensitizer. The medium has several advantages. Namely, it does not require extensive processing and survives high humidity conditions, including water immersion. Several experiments have been conducted to analyze the behavior of this medium, including analysis of recording parameters using a real-time holographic recording/playback setup, pre-curing, swelling, and water survivability tests. Water-immersion survivability of the material is a unique characteristic that can be incorporated in novel holographic and optical systems, such as water immersed holographic optical elements. New possibilities and applications are discussed

|   | Type | L # | Hits  | Search Text  | DBs                    |
|---|------|-----|-------|--|------------------------|
| 1 | BRS  | L1  | 30212 | (hologram or holographic)  | US-<br>PGPUB;<br>USPAT |
| 2 | BRS  | L2  | 5770  | (hologram or holographic)<br>same (sensor or detector or<br>monitor)                           | US-<br>PGPUB;<br>USPAT |
| 3 | BRS  | L3  | 21    | 2 and hydroxyethyl near8<br>methacrylate   | US-<br>PGPUB;<br>USPAT |
| 4 | BRS  | L4  | 1335  | (hologram or holographic)<br>same (pores or porous or<br>porosity or membrane or<br>diffusion) | US-<br>PGPUB;<br>USPAT |
| 5 | BRS  | L5  | 28    | 4 and hydroxyethyl near8<br>methacrylate   | US-<br>PGPUB;<br>USPAT |